6.0 COMPARISON OF ALTERNATIVES

As stated in section 3.0, we evaluated alternatives to the proposed Millennium Pipeline Project to determine whether these alternatives would be reasonable and environmentally preferable to the proposed action. Section 3.0 describes the range of alternatives considered, as well as alternatives that were considered but eliminated from further analysis. This section describes each alternative that is considered reasonable and practicable and compares them to the corresponding segment of the proposed project. Because detailed surveys comparable to those provided by Millennium for the proposed route are unavailable for some of the alternatives, our analysis is based on data from USGS topographic maps, NWI maps, aerial photos where available, and limited field inspections. Based on this comparison of each alternative, we have provided a recommendation of whether the alternative would be environmentally preferable to the corresponding segment of the proposed route.

6.1 SYSTEM ALTERNATIVES

We reviewed a number of system alternatives in section 3.2 that looked at using other existing, modified, or proposed pipeline systems to meet the stated objective of the Millennium Pipeline Project. These system alternatives included the use of:

the existing pipeline systems of Iroquois, Tennessee, Texas Eastern, CNG, Transco, and National Fuel and, specifically, the pipeline systems of Tennessee and National Fuel to avoid the Lake Erie crossing (Niagara Spur System Alternative);

the project systems currently under review by the Commission as proposed by Vector, TriState, ANR, Independence, and Transco;

a one-pipe system that would combine the pipeline systems of Vector/TriState, ANR, Independence, National Fuel/CNG, Texas Eastern, and Millennium into one proposal or several smaller proposals; and

the planned future project being developed by Crossroads, CNG, and East Ohio Gas.

Our preliminary review indicated that only one system alternative, the Niagara Spur System Alternative, was potentially viable and we requested comments from TransCanada, Tennessee, National Fuel, and Millennium on the viability of this option (see section 3.2.1).

6.2 MAJOR ROUTE ALTERNATIVES

We reviewed five major route alternatives: two to avoid the crossing of Lake Erie (the St. Clair/Detroit and Niagara River Alternatives), one along State Route 17, and two alternative routes to a new crossing of the Hudson River (Hudson River Alternatives 1 and 2). The Lake Erie and State Route 17 Alternatives were eliminated from further consideration since it did not appear that they would be environmentally superior to the route proposed by Millennium. The Hudson River alternatives are evaluated below.

6.2.1 Hudson River Alternatives

The NMFS stated that the Hudson River and Haverstraw Bay is known to provide habitat for the shortnose sturgeon, a federally endangered species, and the Atlantic sturgeon, a Federal candidate species. Haverstraw Bay is also a designated Significant Coastal Fish and Wildlife Habitat that is part of the state's

Coastal Management Program (NYSDEC, 1999). The NMFS believes that construction across the Hudson River at Millennium's proposed crossing location could result in a direct impact on the shortnose sturgeon. Therefore, we asked Millennium to evaluate the feasibility of two alternative routes to a new crossing location about 3.3 miles upriver of the proposed crossing. Although both routes would cross the Hudson River at a common location, the alternatives would deviate from the proposed route at different locations (see figure 6.2.1-1).

Hudson River Alternative 1 (MP 377.9 to 391.7)

The Hudson River Alternative 1 would deviate from the proposed route near the Ramapo Station at MP 377.9 and would turn northeast adjacent to the Algonquin pipeline and Con Ed powerline rights-of-way. The alternative would continue adjacent to these rights-of-way for about 10.0 miles to the Hudson River, which is about 5,400 feet wide (1.0 mile) at the alternate crossing. Alternative 1 would cross the Hudson River adjacent to the Algonquin pipelines and would continue east adjacent to the pipeline right-of-way for about 0.9 mile to the Con Ed right-of-way. Alternative 1 would then turn southeast adjacent to the Con Ed powerline and continue for about 1.4 miles to rejoin the proposed route at MP 391.7. Alternative 1 would be adjacent to existing rights-of-way for all but about 700 feet.

In the first approximate 7.0 miles, Alternative 1 would cross the Harriman State Park (a 3.7-mile-long crossing) and the Palisades Interstate Parkway (which are both listed on the NRHP), and a municipal park that was once part of the Letchworth Village State Mental Hospital grounds between Calls Hollow and Willow Grove Roads. Between MP 377.9 and Willow Grove Road, the alternative would be in the Mahwah River valley, where the existing rights-of-way are built along the side slopes that lead into the valley and residences are built up to the slopes. Residential subdivisions would be crossed in the vicinity of Calls Hollow and Willow Grove Roads in this segment. Millennium believes that a reroute would be required around the residential subdivision near Willow Grove Road.

North of the Palisades Interstate Parkway, the alternative would cross residential subdivisions between the Parkway and Cedar Pond Road, and at Bulsontown and Franck Roads. North of Franck Road, the alternative would cross a Boy Scout of America and other camps, as well as another residential subdivision in the vicinity of Buckberg and Mott Farm Road. Millennium states that reroutes would be required around the residential subdivisions near Cedar Pond Road, Bulsontown/Franck Roads, and Buckberg/Mott Farm Roads.

Between North Liberty Road and the west bank of the Hudson River, the alternative would be in an area that is extremely congested and also characterized by steep slope. In addition to the Algonquin pipelines, there are powerlines, possibly a water line, a shore road, and an active railroad. Because there is also a residence in this area, Millennium states that there would not be enough work space to stage either a conventional or a directionally drilled crossing. In addition, because of the length of the crossing (1.0 mile), a directional drill at this location would probably be infeasible. The limit for a directional drill is about 4,500 feet under ideal conditions.

On the east bank of the Hudson River, Alternative 1 would be between the Indian Point Generating Station and the LaFarge Gypsum Plant. This area also has limited work space because of the steep, rock faced shoreline, Algonquin's aboveground facilities (mainline valves and launcher/receivers), a natural drainage and associated wetlands, and ship moorings along a second drainage. Beyond the east shore, the alternative would cross State Route 9A that includes a bridge crossing, a railroad crossing, and commercial and residential development.

FIGURE 6.2.1-1

MILLENIUM PIPELINE PROJECT

HUDSON RIVER
ROUTE ALTERNATIVES

2 Miles

Millennium also states that if the pipeline is not constructed at the proposed Hudson River crossing then a lateral would eventually need to be constructed to the Bowline Generating Station, since the station plans to use natural gas in the future. The lateral would include Line 10338, which would be acquired by Millennium between the Ramapo and Buena Vista Stations, but would still require the construction of about 4.1 miles of pipeline between MPs 383.3 and 387.4.

Alternative 1 would be 4.9 miles longer than the corresponding segment of the proposed route (not including the 4.1-mile-long lateral to Bowline, if required) and would affect at least 58 percent more land, possibly a great deal more because of extra work space requirements for side slope construction in the Mahwah River valley (see table 6.2.1-1). Alternative 1 would also cross through three more subdivisions than the corresponding segment of the proposed route. It would also cross two NRHP-listed properties that would not be affected by the proposed route. Although Alternative 1 would be adjacent to existing rights-of-way for 99 percent of its length (compared to 49 percent for the proposed route), deviations away from the existing rights-of-way may be required around four residential subdivisions. In addition, construction at the alternate Hudson River crossing location may be infeasible because of existing utility and industrial development on both banks. The most significant advantage of Alternative 1 is that it would avoid the proposed crossing through Haverstraw Bay.

TABLE 6.2.1-1

Comparison of the Hudson River Alternatives with the Corresponding Segment of the Proposed Route

State/County	Mileposts/ Environmental Factor		Proposed Route	Hudson River Alternative 1	Hudson River Alternative 2
New York					
Rockland	MPs 377.9 to 391.7				
Westchester	• Total length	mi	8.4	17.4	17.2
	Length without lateral	mi	8.4	13.3	13.1
	Lateral to Bowline	mi	0.0	4.1	4.1
	• Land requirements a/				
	Construction right-of-way	ac	76.4	120.9	119.1
	Permanent right-of-way	ac	50.9	80.6	79.4
	• Length adjacent to existing right-of-way (excluding the lateral to Bowline)	mi	4.1	13.2	10.1
	• NRHP listed or eligible properties crossed				
	Harriman State Park	ft	0	19,536	0
	Palisades Interstate Park	ft	0	500	1,800
	• Residential subdivisions crossed				
	Calls Hollow Road	no	0	1	0
	Willow Grove Road	no	0	1	1
	Palisades/Cedar Pond Road	no	0	1	1
	Bulsontown/Franck Roads	no	0	1	1
	Buckberg/Mott Farm Roads	no	0	1	1
	U.S. Route 202	no	0	0	1
	Buena Vista/South Mountain Roads	no	1	0	0
	U.S. 202/Bridge Road	no	1	0	0

a/ Acreage calculations do not include the lateral to the Bowline Generating Station or extra work space requirements. Calculations are based on a 75-foot-wide construction right-of-way and a 50-foot-wide permanent right-of-way.

Based on the high density of residential development along Alternative 1, the increased potential for impact on cultural and historic resources, and engineering considerations that could preclude any type of crossing at the alternate Hudson River crossing, we do not believe that the Hudson River Alternative

1 would be environmentally preferable to the corresponding segment of proposed route and we do not recommend its use unless the Haverstraw Bay crossing is ultimately rejected due to its impact to the sturgeon.

However, Algonquin has indicated that it may have additional capacity on its existing pipelines in Ramapo area and we are requesting comments from Algonquin and Millennium on the feasibility of transporting Millennium's natural gas volumes across the Hudson River using the Algonquin pipeline system. While the lateral to Bowline may need to be constructed, no construction would be required across Haverstraw Bay.

Hudson River Alternative 2 (MP 377.9 to 391.7)

To allow direct comparison of the Hudson River Alternatives, the beginning of Alternative 2 was placed at the beginning of Alternative 1 at MP 377.9. However, no construction would be required between MPs 377.9 and 383.3 because Millennium proposes to acquire Line 10338 from Columbia and would use it for this segment of the mainline. Construction on Alternative 2 would therefore begin at MP 383.3 and would include construction along the proposed route to about MP 385.4 (2.1 miles). At that point, Alternative 2 would deviate onto a powerline right-of-way that turns west from the proposed route. Alternative 2 would be adjacent to the powerline for about 1.1 miles and then would turn north onto new right-of-way for about 3.0 miles until it joins Alternative 1, about 0.7 mile northeast of the Palisades Interstate Parkway. From that point on, Alternative 2 would follow the same route as Alternative 1 (see figure 6.2.1-1).

After leaving proposed route at MP 385.4, Alternative 2 would cross 0.3 mile of the Palisades Interstate Park adjacent to the powerline right-of-way. This property is listed on the NRHP. After crossing U.S. Route 202, the alternative would leave the powerline right-of-way and continue on new right-of-way through a residential subdivision near Hammond Road, a park that was once part of the Letchworth Village State Mental hospital, the Letchworth Village Development Center, a residential development off Willow Grove Road, a municipal park, and another residential development off of Cedar Pond Road. Elements of the Letchworth Village are considered potentially eligible for listing on the NRHP. Alternative 2 would join Alternative 1 south of Cedar Pond Road.

Alternative 2 would be 4.7 miles longer than the proposed route and 0.2 mile shorter than Alternative 1. The major disadvantage with Alternative 2 is that no corridor could be identified through the residential subdivisions that occur between U.S. Route 202 and the intersection with Alternative 1. Since construction of Alternative 2 would require new right-of-way through these subdivisions, and would cause disruption to residences, we do not recommend Hudson River Alternative 2 unless, as noted above, the Haverstraw Bay crossing of the Hudson River is not approved. In that event, further routing studies would be needed..

6.3 ROUTE VARIATIONS

A number of landowners and area residents identified route variations to be considered in the DEIS. Most of the variations were for specific reasons to address landowner concerns about the placement of the pipeline on their property. Others were suggested as a means to reduce environmental impact. We found that many of the variations could be accommodated with minor realignments (i.e., to avoid a tree, a well, etc.) that could be negotiated between Millennium and the landowner during easement acquisition. Others were not practicable or offered no significant environmental advantage (see sections 3.4 and 3.6.2). Discussed below are two variations for the Lake Erie landfall, one variation at Union Center and one

variation on the proposed route in the same area, two variations to minimize impact on agricultural land, and one variation in Yonkers.

6.3.1 Lake Erie Landfall Route Variations

State Line Variation (Landfall to 36.7)

In its original application, Millennium identified a route with a landfall in North East, Pennsylvania, the State Line Variation (see figure 6.3.1-1). From the landfall in Pennsylvania, the State Line Variation would turn south for about 0.9 mile before crossing into New York and turning southeast for about 1.2 miles to cross the New York State Thruway and State Route 20. It would then turn east for about 0.6 mile to the base of a steep slope on the east side of Ripley Side Hill Road. The variation would then turn northeast along the base of the slope, parallel to Ripley Side Hill Road, cross two unnamed roads and State Route 76, turn east for about 1.0 mile to cross Welch Hill Road, and then continue northeast to the proposed route at MP 36.7 in Westfield, New York. A comparison of the significant environmental characteristics of the State Line Variation with the corresponding segment of the proposed route is in table 6.3.1-1.

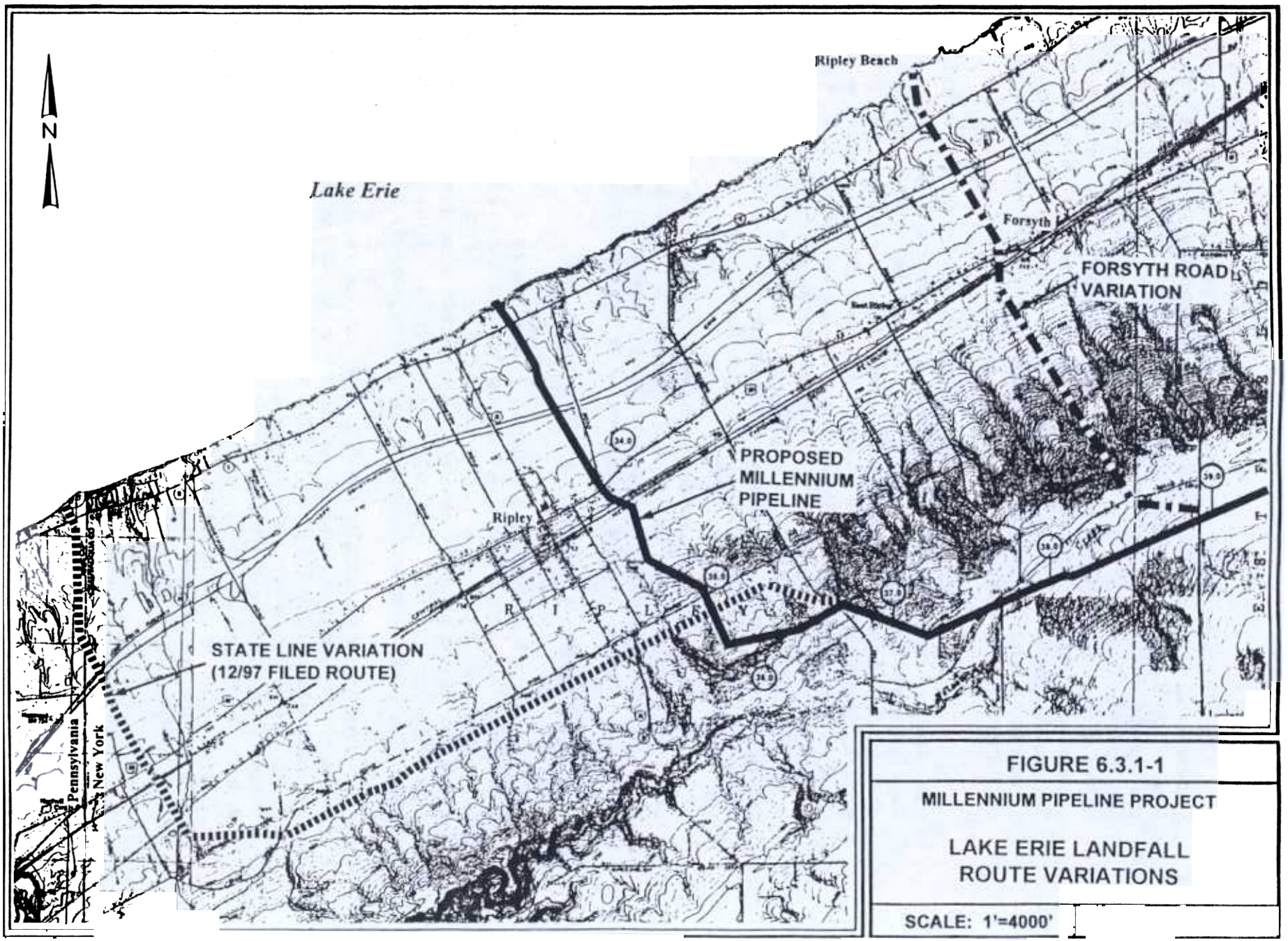
TABLE 6.3.1-1

Comparison of the State Line Variation with the Corresponding Segment of the Proposed Route

State/County	Mileposts/ Environmental Factor	Unit	Proposed Route	State Line Variation
Pennsylvania/New York				
Erie/Chautauqua	Landfall to MP 36.7			
	• Total length (land portion of route)	mi	3.1	6.2
	• Estimated land requirements			
	Construction right-of-way (land)	ac	35.3	75.1
	Permanent right-of-way (land)	ac	19.1	37.5
	• Agricultural land affected by construction	ac	6.6	33.9
	Vineyards crossed	no	0	12
	Vineyards affected by construction	ac	0	12.9
	• Perennial waterbody crossings	no	1	15
	• Wetland crossing length	mi	0	0.1
	Number of wetlands	no	0	6
	Wetlands affected by construction	ac	0	0.24
	• Forest affected by construction	ac	15.9	23.6
	• Residences within 50 feet of the construction work area	no	3	1
	• Cultural resource sites affected	no	0	2 a/

Note: Acreage calculations are for the land segment only and are based on a 75-foot-wide construction right-of-way and a 50-foot-wide permanent right-of-way, and include extra work areas.

a/ A third cultural resource was identified during site file review but not located during the field survey.


N
Lake Erie
Ripley Beach
Forsyth
FORSYTH ROAD
VARIATION
PROPOSED
MILLENNIUM
PIPELINE
Ripley
STATE LINE VARIATION
(12/97 FILED ROUTE)
Pennsylvania
New York
FIGURE 6.3.1-1
MILLENNIUM PIPELINE PROJECT
LAKE ERIE LANDFALL
ROUTE VARIATIONS
SCALE: 1'=4000'

The Lake Erie segment of the State Line Variation would be about 2.4 miles shorter, but the land segment would be 3.1 miles longer, than the corresponding segment of the proposed route. The land segment of the State Line Variation would require a total of about 75.1 acres of construction work area, affecting about 33.9 acres of agricultural land, including 12.9 acres of active vineyards. The proposed route would require about 35.3 acres of construction work area, affecting about 6.6 acres of agricultural land and no vineyards. Additionally, because the land segment of the State Line Variation would be twice as long as the land segment of the proposed route, impact on other resources would be similarly increased. The State Line Variation would cross 14 more perennial streams and 6 more wetlands, and would affect 7.7 acres more forested land than the corresponding segment of the proposed route. Further, the variation could affect two cultural resource sites.

The State Line Variation, the original proposed route, generated numerous comments from Ripley town officials and area residents. The major issue was clearing the vineyards for the construction work area. These vineyards occupy a narrow band along the shores of Lake Erie that has a unique microclimate which is favorable for the vines. Since the area is limited and vines take years to mature, clearing would represent a significant impact on local growers. Other concerns included impact on water supplies, specifically on wells along Ripley Side Hill Road, and proximity to residences and the Ripley school. The proposed route would avoid all vineyards and would not parallel Ripley Side Hill Road, thereby reducing potential impacts on private water supplies. However, the proposed route would be about 0.3 mile from the Ripley School (the State Line Variation would be about 1.0 mile from the school) and the construction work area would be within 50 feet of 3 residences (2 more than the State Line Variation).

While the proposed route would be closer to 2 more residences and the town school than the State Line Variation, we believe that the advantages of the proposed route, including avoidance of active vineyards and wetlands, outweigh the disadvantages of the proposed route's proximity to two residences and the town school. Therefore, we do not recommend the State Line Variation.

Forsyth Road Variation (Landfall to 39.0)

The Forsyth Road Variation was identified by several Ripley residents and would have a landfall in the vicinity of Ripley Beach. From there, the variation would continue southeast parallel to Ripley Road and then cross State Route 5 and I-90. After crossing State Route 20 and a 4-track railroad bed in the Forsyth area, the variation would continue southeast to rejoin the proposed route east of Parker Road at about MP 39.0 (see figure 6.3.1-1). A comparison of the significant environmental characteristics of the Forsyth Road Variation with the corresponding segment of the proposed route is in table 6.3.1-2.

The Lake Erie segment of the Forsyth Road Variation would be about 3.0 miles longer, but the land segment would be about 2.3 miles shorter, than the corresponding segment of the proposed route. The primary advantage of the Forsyth Road Variation would be the shorter land segment of the route, that would require about 20.9 acres less construction right-of-way than the corresponding segment of the proposed route. The variation would also increase the distance between the pipeline and the town of Ripley, including the town school. The construction work area for the variation would be within 50 feet of 2 fewer homes than the corresponding segment of the proposed route. Both routes would cross one perennial stream, Bradley Creek. Construction of the Forsyth Road Variation would require clearing of most of the trees within a forested town park for the construction work area for the directional drill.

TABLE 6.3.1-2

Comparison of the Forsyth Road Variation with the Corresponding Segment of the Proposed Route

County	Mileposts/ Environmental Factor	Unit	Proposed Route	Forsyth Road Variation
Chautauqua	Landfall to MP 39.0			
	• Total length (land portion of route)	mi	5.6	3.3
	• Estimated land requirements			
	Construction right-of-way (land)	ac	50.9	30.0
	Permanent right-of-way (land)	ac	33.9	20.0
	• Agricultural land affected by construction	ac	6.6	NA
	Vineyards crossed	no	0	0
	Vineyards affected by construction	ac	0	0
	• Perennial water body crossings	no	1	1
	• Residences within 50 feet of the construction work area	no	3	1

Note: Acreage calculations are for the land segment only and are based on a 75-foot-wide construction right-of-way and a 50-foot-wide permanent right-of-way.
NA Not Available

As discussed above, we received comments about the potential impact on vineyards and private wells adjacent to Ripley Side Hill Road. Both the proposed route and the variation would avoid paralleling Ripley Side Hill Road and neither would require construction through vineyards. While we found no significant environmental advantages or disadvantages with the Forsyth Road Variation when compared to the corresponding segment of the proposed route at Wiley Road, the Lake Erie segment of the variation would be longer. The variation would also require clearing of most of the trees in the town park and would cross through much steeper topography between I-90 and the intersection with the proposed route. Since the proposed route mostly addresses landowner and town comments, balances additional construction in Lake Erie (with a 200-foot-wide right-of-way) with additional construction on land, and would avoid tree removal within the town park, we have not identified a compelling environmental advantage with the Forsyth Road Variation and do not recommend its use.

6.3.2 Union Center Variations

Line A-5 Variation (MPs 232.4 to 243.5)

The Line A-5 Variation was Millennium's original proposed route between MPs 232.4 and 243.5 and would essentially follow the existing Columbia Line A-5 right-of-way. It would begin where the proposed route would deviate northeast along an existing powerline and would continue east adjacent to the existing Line A-5 right-of-way to the point where the powerline right-of-way (and the proposed route) rejoin the Line A-5 right-of-way (see figure 6.3.2-1, sheets 1 and 2). A comparison of the significant environmental characteristics of the Line A-5 Variation with the corresponding segment of the proposed route is in table 6.3-2-1.

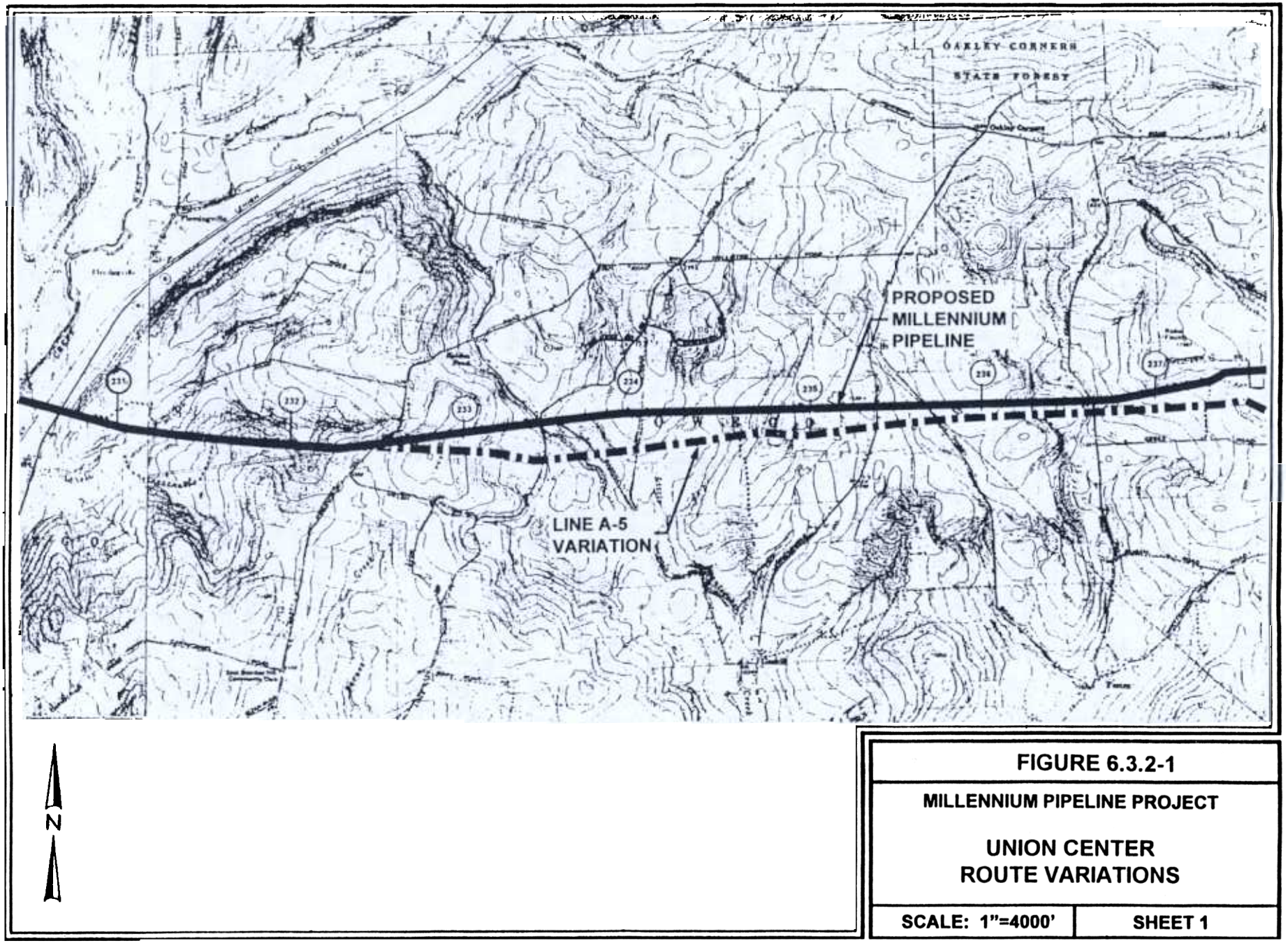


FIGURE 6.3.2-1

MILLENNIUM PIPELINE PROJECT

UNION CENTER
ROUTE VARIATIONS

SCALE: 1"=4000'	SHEET 1

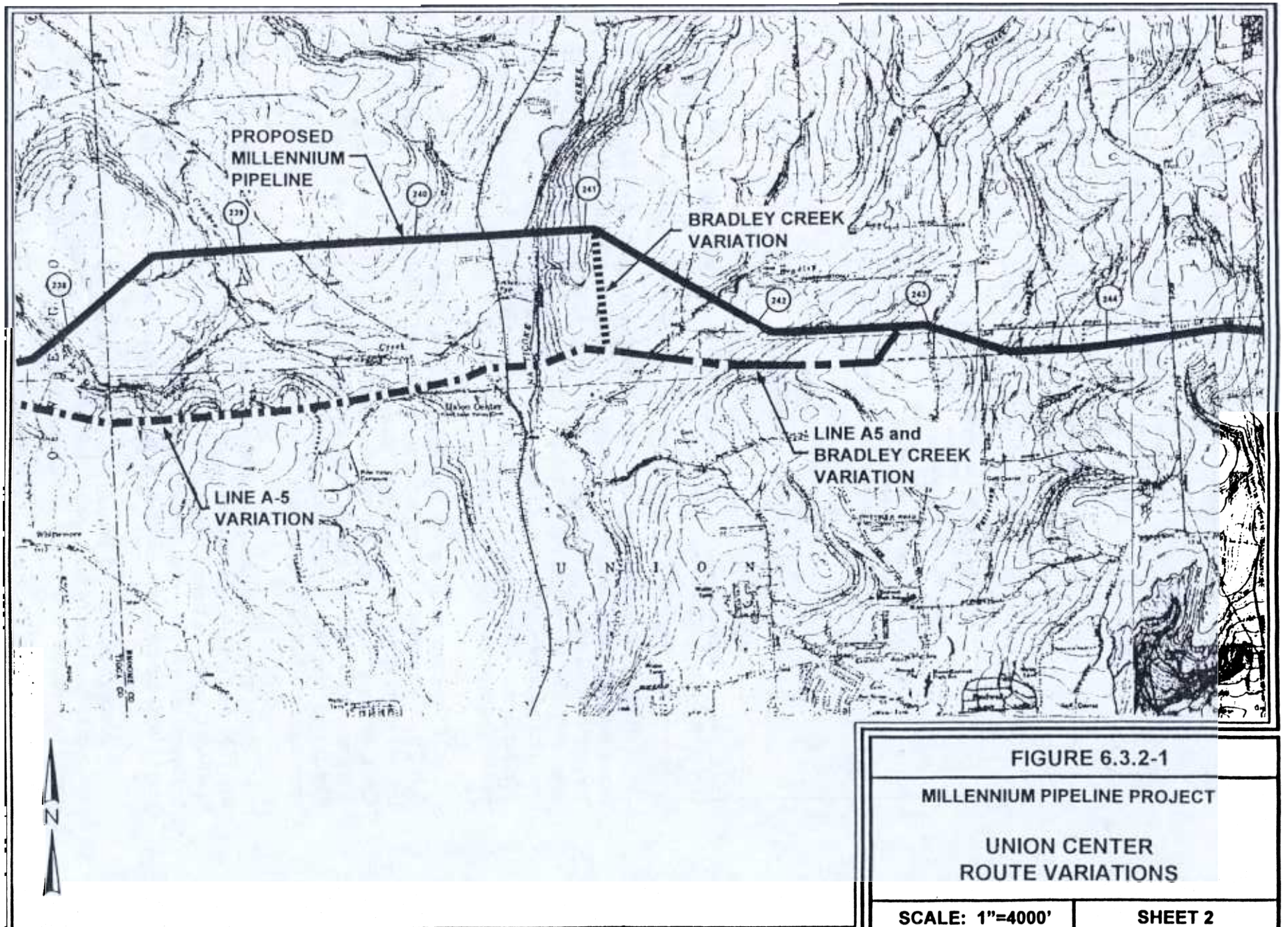


FIGURE 6.3.2-1

MILLENNIUM PIPELINE PROJECT

UNION CENTER
ROUTE VARIATIONS

SCALE: 1"=4000' | SHEET 2

TABLE 6.3.2-1

Comparison of the Line A-5 Variation with the Corresponding Segment of the Proposed Route

County	Mileposts/ Environmental Factor	Unit	Proposed Route	Line A-5 Variation
Tioga/Broome	MPs 232.4 to 243.5			
	• Total length	mi	11.5	11.2
	• Estimated land requirements			
	Construction work area	ac	123.1	162.1
	Permanent right-of-way	ac	70.0	67.6
	• Perennial waterbody crossings	no	7	5
	• Wetland crossing length	mi	0.6	1.2
	Number of wetlands	no	13	23
	Wetlands affected by construction	ac	5.1	14.5
	• Agricultural land affected by construction	ac	20.1	12.6
	• Forest affected by construction	ac	0.8	34.3
	• Residences within 50 feet of the construction work area	no	1	18
	• Cultural resource sites recommended for Phase II testing	no	2	2

Note: Acreage calculations are based on a 75-foot-wide construction right-of-way and a 50-foot-wide permanent right-of-way, and include extra work areas.

The Line A-5 Variation would be about 0.3 mile (2,100 feet) shorter than the proposed route, but would require about 33.0 acres more construction work area because of the extra work areas required in the congested area around Union Center. The Line A-5 Variation would also require the clearing of 33.5 acres more forest, would cross 10 more wetlands affecting 9.4 more acres of wetland, and the construction work area would be within 50 feet of 17 more residences. However, the Line A-5 Variation would cross 2 fewer perennial streams and affect 7.5 fewer acres of agricultural land. Both routes are generally entirely within or adjacent to existing utility corridors.

The concerns identified with original route (Line A-5 Variation) included the crossing of the Mt. Saint Francis Hermitage, a religious retreat west of Bradley Creek Road; and the Kodey tree farm, located west of Farm to Market Road. In addition, residents along Boswell Hill Road and in the vicinity of Bradley Creek Road adjacent to Line A-5 were concerned about the proximity of the new pipeline to their residences. At Bradley Creek Road, a new pipeline for NYSEG had been routed adjacent to Line A-5 through their properties, thereby limiting the amount of space available for a new pipeline. The proposed route would avoid all of these properties.

From an operational standpoint, Millennium states about 3.3 miles of the existing Line A-5, from west of Maple Road in Union Center to east of Farm To Market Road in Endicott, would need to remain in service to supply the Union Center and Endicott Stations. In addition, a new regulating station would be required at the east end of the proposed route (about MP 243.5). Most of this segment of Line A-5 was built in 1954, and the current maximum operating pressure would need to be reduced.

Although the Line A-5 Variation would be shorter and would cost about $874,000 less than the corresponding segment of the proposed route, the variation would increase construction impact, and impacts on residential, wetland, and and forested areas. Therefore, we do not recommend the Line A-5 Variation.

Bradley Creek Variation (MPs 241.1 to 242.6)

The Bradley Creek Variation was proposed by a resident on Bradley Creek Road at MP 241.6 to reduce impacts to properties on Pitkin Hill and Bradley Creek Roads adjacent to the proposed route. The Bradley Creek Variation would leave the proposed route and the powerline right-of-way at a point about 2,700 feet west of Pitkin Hill Road. The variation would turn south and continue along the existing NYSEG pipeline right-of-way for about 3,700 feet to the intersection with the Line A-5 right-of-way. At this point, it would turn east, cross Bradley Creek Road, and follow Line A-5 to a point about 1,700 feet west of Farm to Market Road. Here, the variation would turn northeast from the Line A-5 right-of-way along NYSEG's pipeline right-of-way to rejoin the NYSEG powerline and the proposed route at MP 242.6 (see figure 6.3.2-1, sheet 2). A comparison of the significant environmental characteristics of the Bradley Creek Variation with the corresponding segment of the proposed route is in table 6.3.2-2.

TABLE 6.3.2-2

Comparison of the Bradley Creek Variation with the Corresponding Segment of the Proposed Route

State/County	Mileposts/ Environmental Factor	Unit	Proposed Route	Bradley Creek Variation
New York				
Broome	MPs 241.1 to 242.6			
	• Total length	mi	1.8	2.4
	• Estimated land requirements			
	Construction right-of-way	ac	15.5	23.0
	Permanent right-of-way	ac	10.9	15.2
	• Total agricultural land crossed	ac	0	9.5
	• Total forest land crossed	ac	0	4.0
	• Total perennial water body crossings	no	2	1
	• Residences within 50 feet of the construction work area	no	0	0

Note: Acreage calculations are based on a 75-foot-wide construction right-of-way and a 50-foot-wide permanent right-of-way.

The Bradley Creek Variation would be 0.6 mile longer than the corresponding segment of the proposed route, and would affect 7.5 more acres of land including 9.5 more acres of agricultural land and 4.0 more acres of forested land. However, the variation would cross 1 fewer perennial waterbodies.

Landowner concerns with the proposed route in this segment included: 1) the proposed route would preclude access to properties (specifically the Lewis property on Bradley Creek Road at about MP 241.9) both during and after construction, 2) the proposed route would interfere with the use of trucks and heavy equipment that are required for business activities on these properties, 3) the proposed route would affect a ground fed water supply system (specifically the Supa property at about MP 242.0), and 4) construction of the proposed route would result in erosion and other problems because of the steep slopes and erodible soils between MPs 242.0 and 242.5.

Millennium proposes to place its pipeline between the powerline structures within the existing powerline right-of-way. Access to properties off Bradley Creek Road may be temporarily affected for several minutes when construction equipment crosses the road along the proposed route and during installation of the pipeline under the road. At all other times, Bradley Creek Road would remain open.

Although it seems unlikely that residents extensively use the portion of the powerline right-of-way between the powerline structures for heavy equipment, Millennium would provide additional cover if necessary to protect its pipeline from such uses. While we recognize that construction may affect the water supply system on the Supa property (which supplies water to the barn and farm pond), Millennium has committed to, and we will require, pre- and post-construction water quality testing of wells and springs. Further, should construction activities temporarily or permanently impair water quality or yield, Millennium would provide a temporary water source, and repair, replace, or compensate the landowner (see section 5.3.1.2). Finally, side slopes are typically encountered during the construction of pipelines and special techniques have been developed to address construction-related issues. Because both the proposed route and the Bradley Creek Variation would cross the same ridge, although in locations about 0.2 mile apart, they would most likely encounter similar soil and topographic conditions.

We have not identified any significant environmental advantage with the Bradley Creek Variation. Both routes are similar in that neither alignment would place the construction work area within 50 feet of an existing residence and both routes would cross Bradley Creek. The disadvantages of the Bradley Creek Variation include its longer length (about 3,300 feet) and additional land use impacts, including additional impacts on agricultural and forested areas. We also believe that the concerns of the affected residents can be mitigated without the need for the added environmental impact. Because we believe that the disadvantages of the Bradley Creek Variation outweigh its advantages, we do not recommend the Bradley Creek Variation.

6.3.3 Micha Route Variations

A landowner in Johnson City, New York commented that six existing utility lines currently cross his property at about MP 243.5 and requested that any additional pipelines be placed within existing easements to minimize impacts. The Micha property is east of Union Center, where Millennium's pipeline would be installed between the powerline structures to about MP 243.5. At the western edge of the Micha property, the proposed route would rejoin the existing Line A-5 corridor, where Millennium proposes to install the new pipeline using a 25-foot offset from the existing line. This would require an additional 25 feet of permanent right-of-way outside of the existing corridor. Millennium has maximized the use of the existing Columbia right-of-way in this area and the additional 25 feet of permanent right-of-way would not significantly affect future agricultural operations. However, the NYSDA&M commented that there may be benefits associated with moving out of agricultural land and onto new right-of-way in this location. Therefore, we have identified and evaluated two route variations in this location and compared them to the corresponding segment of the proposed route (see figure 6.3.3-1).

Micha Variation (MPs 243.4 to 244.7)

This route variation was identified by the affected property owner to minimize the length of the proposed crossing through active agricultural lands. The landowner has apparently consulted with some of the affected landowners along the variation for their approval of the reroute. The variation would deviate from the proposed route just east of Cummings Road at about MP 243.4. At this point, the variation would continue southeast within the existing powerline right-of-way for about 1.0 mile to a point east of Case Road, where it would turn east, and cross the Goodrich and Morlando properties before rejoining the proposed route at about MP 244.7, about 650 feet west of Oakdale Road. A comparison of the significant environmental characteristics of the Micha Variation with the corresponding segment of the proposed route is in table 6.3.3-1.

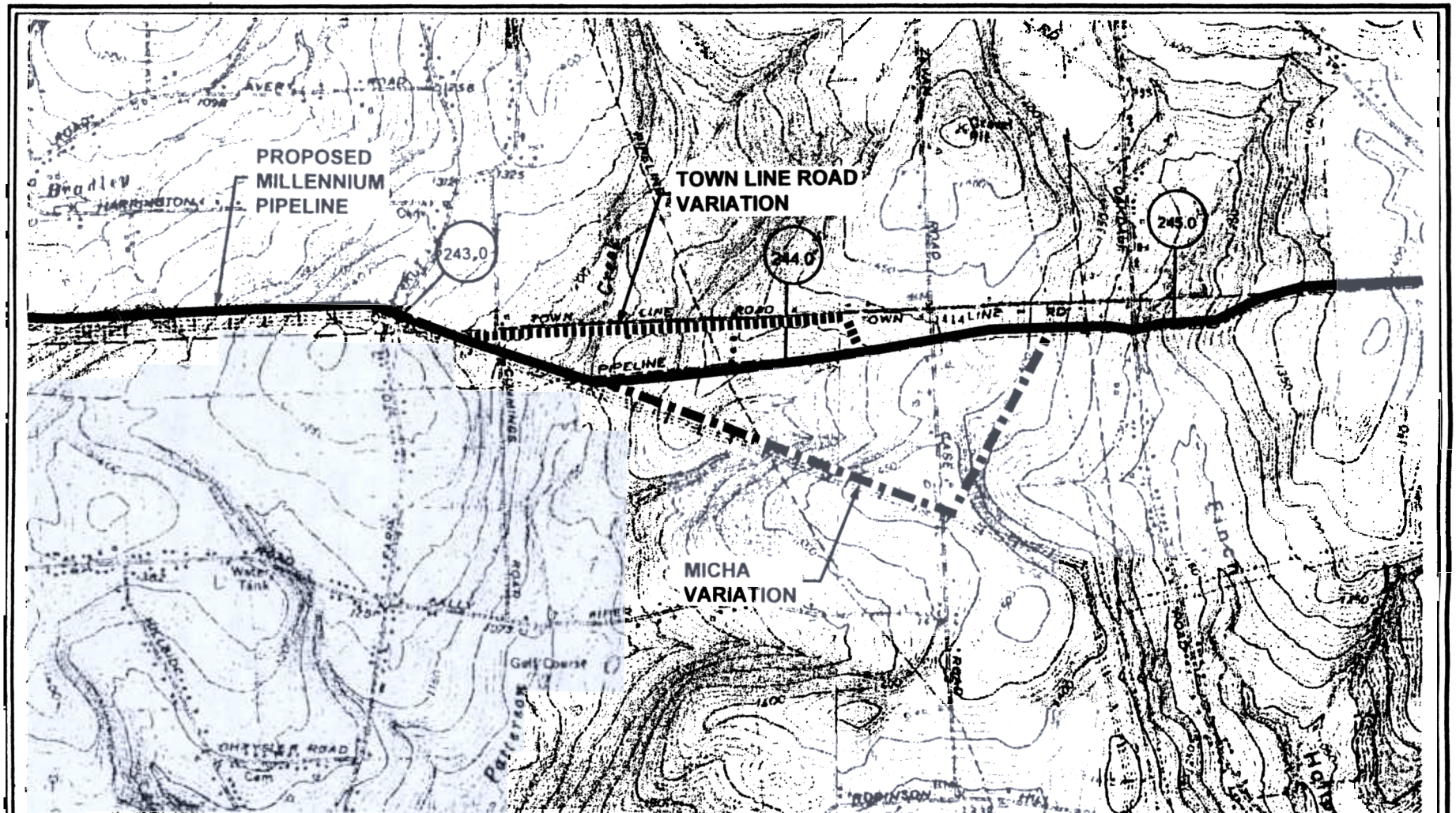


FIGURE 6.3.3-1

MILLENNIUM PIPELINE PROJECT

MICHA
ROUTE VARIATIONS

SCALE: 1"=2000'

TABLE 6.3.3-1

Comparison of the Micha Variation with the Corresponding Segment of the Proposed Route

State/County	Mileposts/ Environmental Factor	Unit	Proposed Route	Micha Variation
New York				
Broome	MPs 243.4 to 244.7			
	• Total length	mi	1.3	1.5
	• Estimated land requirements			
	Construction right-of-way	ac	11.4	13.4
	Permanent right-of-way	ac	7.6	8.9
	• Residences within 50 feet of the construction work area	no	0	0

Note: Acreage calculations are based on a 75-foot-wide construction right-of-way and a 50-foot-wide permanent right-of-way.

Our review of this variation was based on existing aerial photography and topographic maps, and indicates that, while it would reduce the pipeline crossing through the Micha property, construction would require an additional 1,200 feet of pipeline and the creation of about 2,500 feet of new right-of-way. This new right-of-way would be along the side slopes, which likely would require additional construction work areas. Further, while the Goodrich and Morlando properties currently contain utility rights-of-way, the Micha Variation would cross diagonally through these properties on land currently unencumbered by utility easements, restricting future use of these properties in multiple locations. Because of the additional length of pipeline required and the creation of a new right-of-way through portions of previously unaffected properties, we do not recommend this variation.

Town Line Road Variation (MPs 243.0 to 244.0)

The Town Line Road Variation would deviate from the proposed route just east of Farm to Market Road at about MP 243.0, at the intersection of the proposed route and the Maine/Union Town Line. The variation would then continue east adjacent to the town boundary, cross Cummings Road, and then follow the south side of Town Line Road for about 4,200 feet, where it would turn southwest for about 600 feet before rejoining the proposed route on the existing Line A-5 right-of-way at about MP 244.0 (see figure 6.3.3-1). A comparison of the significant environmental characteristics of the Town Line Road Variation with the corresponding segment of the proposed route is in table 6.3.3-2.

As with the Micha Variation, this variation would minimize disruption to agricultural lands by placing the pipeline at the edge of the fields adjacent to Town Line Road. However, this variation would require the construction of only about 150 feet of additional pipeline. Further, the majority of this variation would be constructed adjacent to an existing road, requiring about 1,400 feet of new right-of-way of which only 600 feet would diagonally cross a property. No areas requiring special construction techniques were identified during our review. We believe that this route variation would minimize impacts to active agricultural land while maximizing the use of existing rights-of-way and we recommend its use.

TABLE 6.3.3-2

Comparison of the Town Line Road Variation with the Corresponding Segment of the Proposed Route

State/County	Mileposts/ Environmental Factor	Unit	Proposed Route	Town Line Road Variation
New York				
Broome	MPs 243.0 to 244.0			
	• Total length	mi	1.1	1.1
	• Estimated land requirements			
	Construction right-of-way	ac	9.6	9.8
	Permanent right-of-way	ac	6.4	6.5
	• Residences within 50 feet of the construction work area	no	0	0

Note: Acreage calculations are based on a 75-foot-wide construction right-of-way and a 50-foot-wide permanent right-of-way.

6.3.4 Bauer Route Variations

Based on comments from the NYSDA&M, we evaluated 3 route variations to minimize impacts to a dairy farm located at about MP 302.5 (see figure 6.3.4-1). The property owner commented that the proposed route would locate the pipeline adjacent to an existing dairy barn and cross the inlet to a small pond that supplies water to the farm, potentially disrupting his water source during and after construction.

Bauer Variation A (MP 302.5 to 302.8)

Bauer Variation A was identified by the NYSDA&M and would deviate from the proposed route just west of County Route 132 at MP 302.5. It would continue east for about 700 feet, cross West Simmon Road, and continue east for another 800 feet. At this point, Bauer Route Variation A would turn south for about 1,400 feet, cross County Route 132 and rejoin the proposed route at about MP 302.8. This variation would avoid the dairy barn by crossing to the east side of Route 132 and cross the pond inlet about 700 feet above the pond. The variation would be about 200 feet longer than the corresponding segment of the proposed route

Bauer Variation B (MP 302.7 to 302.8)

Bauer Variation B would deviate from the proposed route at about MP 302.7 and deviate southwest to increase the separation between the pipeline and the barn. The variation would continue for a short distance south past the barn and then turn east across County Route 132 to avoid the pond inlet. After crossing the road, the variation would join Variation A, turn south, recross County Route 132 and rejoin the proposed route at about MP 302.8. This variation would increase the separation between the pipeline and the barn by about 100 feet and cross the inlet to the pond on the east side of the roadway about 700 feet above the pond. The variation would be about 600 feet longer than the corresponding segment of the proposed route.

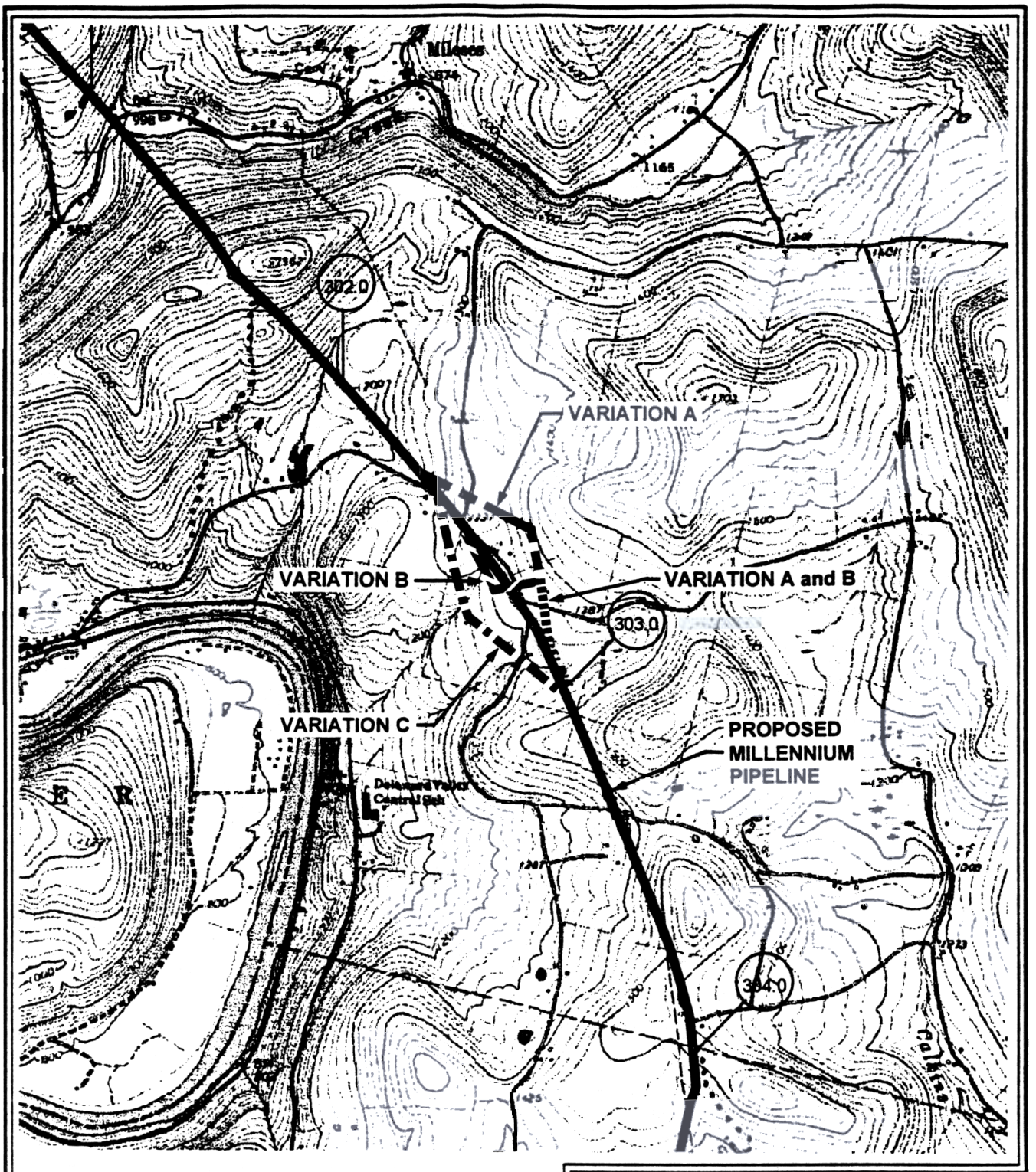


FIGURE 6.3.4-1

MILLENNIUM PIPELINE PROJECT

BAUER
ROUTE VARIATIONS

SCALE: 1"=2000'

Bauer Variation C (MP 302.6 to 303.0)

Bauer Variation C would deviate from the proposed route at about MP 302.6, would continue south for about 1,600 feet, then turn southeast for another 1,600 feet, cross Lahm Road, and then rejoin the proposed route at about MP 303.0. This variation would increase the distance between the pipeline and the dairy barn to about 350 feet and would avoid crossing the inlet to the farm pond. It would be about 200 feet longer than the corresponding segment of the proposed route.

All three of these variations would increase the separation between the pipeline and the barn, thus reducing potential impact on dairy operations during construction. However, only Variation C would avoid a crossing of the pond's feeder stream because the pipeline would be south, or downstream, of the pond. Because Variation C would increase the separation between the pipeline and the dairy barn and is the only route that would entirely avoid the water source for the farm pond, we recommend its use. However, this variation would be entirely within one landowner's property and we believe that the ultimate route should be the one that best suits landowner needs.

6.3.5 Yonkers Route Variations (MPs 417.2 to 421.3)

Millennium incorporated a line change in the City of Yonkers between MPs 417.2 and 421.3 as a result of consultations with the Westchester County Planning Department. The City of Yonkers commented that Millennium's proposed route would adversely affect residential areas between approximate MPs 419.0 and 420.5. Specifically, the City of Yonkers identified the Sherwood House (a NRHP-listed property located about 500 feet west of the proposed route on Tuckahoe Road at approximate MP 418.3) and two residential areas of concern: the first (beginning at about MP 418.4) would be where the pipeline would be placed within Palmer Road between Central Park Avenue and the crossing of Sprain Brook Parkway; and the second (beginning at about MP 419.5) would be where the pipeline would be placed within Desmond and Midland Avenues, and Bronx River Road.

The proposed route would cross through the entrance and exit ramps of Sprain Brook Parkway and Tuckahoe Road. We believe this location would maximize the distance between the Sherwood House and the pipeline and would result in the least impact on this historic property. However, we did evaluate route variations in each of these residential areas (based on Millennium's original route filed in December 1997) that would move the pipeline out of the streets and thus increase the separation between the pipeline and the residential and commercial structures in this area. Both variations would deviate east from the proposed route to a location adjacent to the Sprain Brook Parkway.

Segment 1 - Palmer Road Variation (MP 418.4 to 419.0)

This segment of the proposed route would cross Central Park Avenue at about MP 418.4, would cross the exit/entrance ramps to the Sprain Brook Parkway, and then continue within Palmer Road until Palmer Road turns east across Sprain Brook Parkway at approximate MP 419.0 (see figure 6.3.5-1). At that point, the proposed route would continue adjacent to the Sprain Brook Parkway. Our review indicates that development along this portion of Palmer Road consists of a total of about 18 commercial and residential structures, located on both the east and west sides of the road.

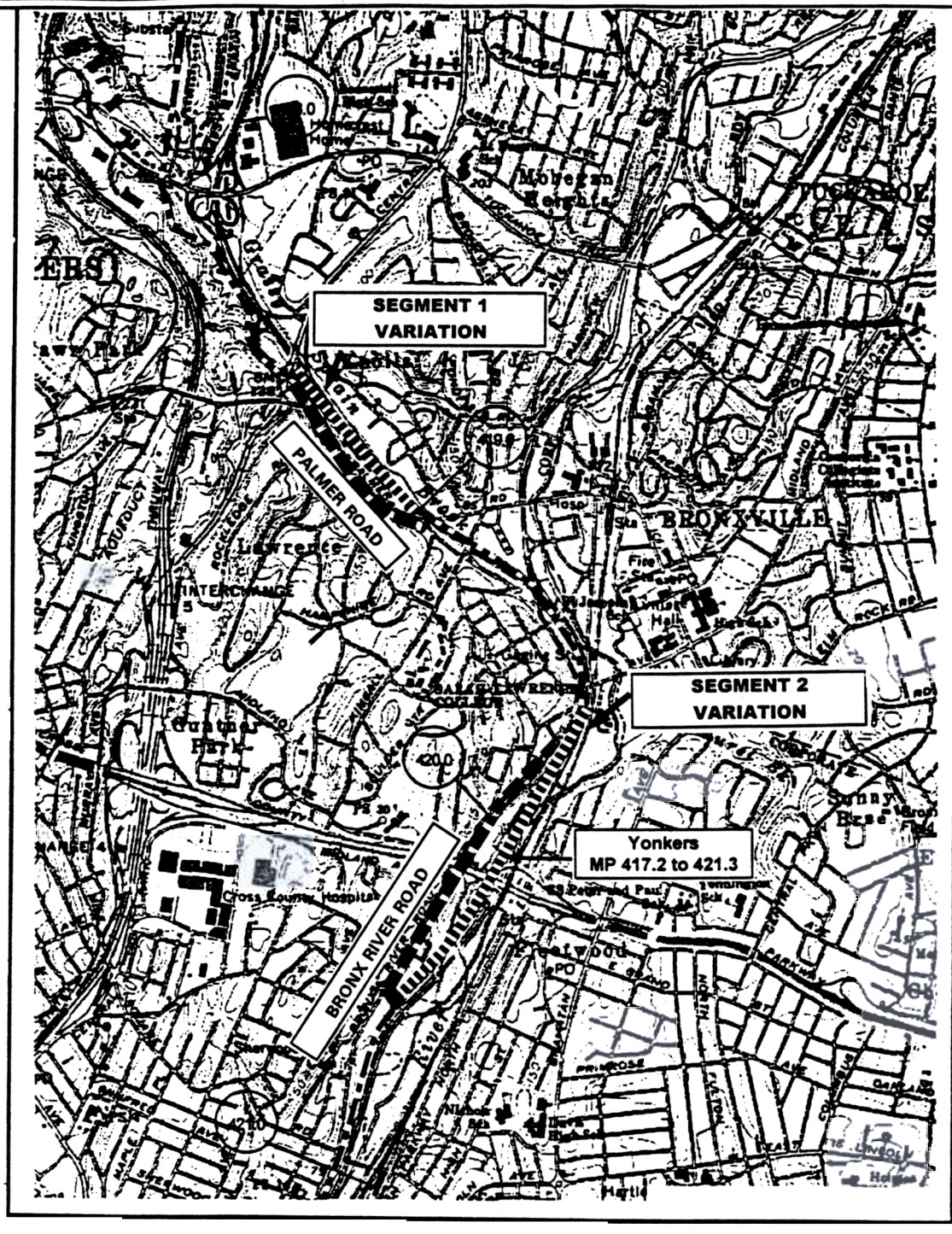


FIGURE 6.3.5-1

MILLENIUM PIPELINE PROJECT

YONKERS
ROUTE VARIATIONS

The Palmer Road Variation route would avoid Palmer Road by continuing southeast adjacent to the Sprain Brook Parkway at the rear of 5 properties on the east side of Palmer Road, and at a maximum distance of about 250 feet east of the proposed route. Construction of the variation would probably require the clearing of trees and other vegetation that serves as a visual and noise barrier between the buildings and residences and the Parkway. Construction of the proposed route within Palmer Road would result in the inconvenience of construction activities in the street, and may include temporary loss of access, possible disruption of utilities, and noise and dust.

While we recognize the potential for disruption to Palmer Road from construction activities, this impact would be temporary and confined to a period of about 2 weeks. Millennium proposes to notify residents of upcoming construction activities, to provide transportation access for persons in residences that would be temporarily affected by construction, and to install the pipeline using sewer-line/stove-pipe construction techniques which would limit the amount and duration of open trench (see section 5.8.2.2). The removal of existing trees and screening vegetation between Palmer Road and the Sprain Brook Parkway would be a long-term impact on the residences and commercial buildings on Palmer Road. Therefore, we do not recommend the Palmer Road Variation at this time.

Segment 2 - Desmond Avenue/Bronx River Road Variation (MPs 419.4 to 420.5)

This segment of the proposed route would enter Desmond Avenue just north of Dewitt Avenue at about MP 419.4. The pipeline would then be constructed within Desmond Avenue, Midland Avenue, and Bronx River Road, before crossing under the Cross County Parkway at approximate MP 420.5, and continuing east and then south to the terminus in Mount Vernon. As with the Palmer Road area discussed above, the City of Yonkers commented that construction along the proposed route would adversely affect automobile traffic, pedestrians, and existing residential development along Desmond Avenue, Midland Avenue, and Bronx River Road. Our review indicates that this segment of the proposed route includes about 8 residences on Desmond Avenue, 3 large commercial buildings and a large apartment structure on Midland Avenue, and at least 2 commercial buildings and 18 residences or apartment buildings on Bronx River Road.

As an alternative to the proposed route in this area, we evaluated the Desmond Avenue/Bronx River Road Variation (based on Millennium's original route filed in December 1997) that would place the pipeline between 50 and 450 feet east of the proposed route along the Bronx River Parkway. As with the Palmer Road Variation, construction of this variation would likely require the clearing of trees and other vegetation that serve as visual and noise buffers between the Parkway and the adjacent properties. Construction within the streets in this area would probably require about 1 month to complete.

Again, we believe that removal of the vegetative screening would be a long-term impact whereas construction in the streets would be a temporary inconvenience where most adverse impacts could be mitigated through proper planning and careful construction practices. Therefore, we do not recommend the Desmond Avenue/Bronx River Road Variation at this time.